

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions, and listings, of claims in the application.

1. (Original) An isolated polypeptide comprising a mutant peptide sequence, wherein the mutant peptide sequence encodes an O-linked glycosylation site that does not exist in a wild-type polypeptide corresponding to the isolated polypeptide.

2. (Original) The polypeptide of claim 1, wherein the polypeptide is a G-CSF polypeptide.

3. (Currently Amended) The polypeptide of claim 2, wherein the G-CSF polypeptide comprises a mutant peptide sequence with the formula of M^1X_nTPLGP (SEQ ID NO: 214) or $M^1B_oPZ_mX_nTPLGP$ (SEQ ID NO: 215), and wherein

the superscript denotes the position of the amino acid in the wild-type G-CSF amino acid sequence (~~SEQ ID NO: 3 SEQ ID NO: 143~~), the subscripts n, o, and m are integers selected from 0 to 3, and

at least one of X and B is Thr or Ser, and

when more than one of X and B is Thr or Ser, the identity of these moieties is independently selected, and

Z is selected from glutamate, or any uncharged amino acid.

4. (Currently Amended) The mutant G-CSF polypeptide of claim 3, wherein the mutant peptide sequence is selected from the sequences consisting of MVTPLGP (SEQ ID NO: 1), MQTPLGP (SEQ ID NO: 2), MIATPLGP (SEQ ID NO: 3), MATPLGP (SEQ ID NO: 4), MPTQGAMPLGP (SEQ ID NO: 5), MVQTPLGP (SEQ ID NO: 6), MQSTPLGP (SEQ ID NO: 7), MGQTPLGP (SEQ ID NO: 8), MAPTSSSPLGP (SEQ ID NO: 9), and MAPTPLGPA (SEQ ID NO: 10).

5. (Currently Amended) The polypeptide of claim 2, wherein the G-CSF polypeptide comprises a mutant peptide sequence with the formula of $M^1TPX_nB_oO_rP$ (SEQ ID NO: 216) wherein

the superscript denotes the position of the amino acid in ~~SEQ ID NO: 3 SEQ ID NO: 143~~, and

the subscripts n, o, and r are integers selected from 0 to 3, and
at least one of X, B and O is Thr or Ser, and
when more than one of X, B and O is Thr or Ser, the identity of these moieties
is independently selected.

6. (Currently Amended) The polypeptide of claim 5, wherein the mutant peptide sequence is selected from the sequences consisting of: MTPTLGP (SEQ ID NO: 228), MTPTQLGP (SEQ ID NO: 11), MTPTSLGP (SEQ ID NO: 12), MTPTQGP (SEQ ID NO: 13), MTPTSSP (SEQ ID NO: 14), M¹TPQTP (SEQ ID NO: 15), M¹TPTGP (SEQ ID NO: 16), M¹TPLTP (SEQ ID NO: 17), M¹TPNTGP (SEQ ID NO: 18), MTPLGP (G-CSF mut #4) (SEQ ID NO: 19), M¹TPVTP (SEQ ID NO: 20), M¹TPMVTP (SEQ ID NO: 21), and MT¹P²TQGL³G⁴P⁵A⁶S⁷ (SEQ ID NO: 22).

7. (Currently Amended) The polypeptide of claim 2, wherein the G-CSF polypeptide comprises a mutant peptide sequence with the formula of LGX⁵³B_oLGI (SEQ ID NO: 217) wherein

the superscript denotes the position of the amino acid in the wild type G-CSF amino acid sequence (~~SEQ ID NO: 3~~ SEQ ID NO: 143), and

X is histidine, serine, arginine, glutamic acid or tyrosine, and

B is either threonine or serine, and

o is an integer from 0 to 3.

8. (Currently Amended) The polypeptide of claim 7, wherein the mutant peptide sequence is selected from the sequences consisting of: LGHTLGI (SEQ ID NO: 23), LGSSLGI (SEQ ID NO: 24), LGYSLGI (SEQ ID NO: 25), LGESLGI (SEQ ID NO: 26), and LGSTLGI (SEQ ID NO: 27).

9. (Currently Amended) The polypeptide of claim 2, wherein the G-CSF polypeptide comprises a mutant peptide sequence with the formula of P¹²⁹Z_mJ_qO_rX_nPT (SEQ ID NO: 218) wherein

the superscript denotes the position of the amino acid in the wild type G-CSF amino acid sequence (~~SEQ ID NO: 3~~ SEQ ID NO: 143),

Z, J, O and X are independently selected from Thr or Ser, and

m, q, r, and n are integers independently selected from 0 to 3.

10. (Currently Amended) The polypeptide of claim 9, wherein the mutant peptide sequence is selected from the sequences consisting of: P¹²⁹ATQPT (SEQ ID NO: 28), P¹²⁹TLGPT (SEQ ID NO: 29), P¹²⁹TQGPT (SEQ ID NO: 30), P129TSSPT (SEQ ID NO: 31), P¹²⁹TQGAPT (SEQ ID NO: 32), P¹²⁹NTGPT (SEQ ID NO: 33), PALQPTQT (SEQ ID NO: 34), P¹²⁹ALTPT (SEQ ID NO: 35), P¹²⁹MVTPT (SEQ ID NO: 36), P¹²⁹ASSTPT (SEQ ID NO: 37), P¹²⁹TTQP (SEQ ID NO: 38), P¹²⁹NTLP (SEQ ID NO: 39), P¹²⁹TLQP (SEQ ID NO: 40), MAP¹²⁹ATQPTQGAM (SEQ ID NO: 41), and MP¹²⁹ATTQPTQGAM (SEQ ID NO: 42).

11. (Currently Amended) The polypeptide of claim 2, wherein the G-CSF polypeptide comprises a mutant peptide sequence with the formula of PZ_mU_sJ_qP⁶¹O_rX_nB_oC (SEQ ID NO: 219) wherein

the superscript denotes the position of the amino acid in the wild type G-CSF amino acid sequence (~~SEQ ID NO: 3~~ SEQ ID NO: 143),

at least one of Z, J, O, and U is selected from threonine or serine, and when more than one of Z, J, O and U is threonine or serine, each is independently selected, and

m, s, q, r, n, and o are integers independently selected from 0 to 3.

12. (Currently Amended) The polypeptide of claim 11, wherein the mutant peptide sequence is selected from the sequences consisting of: P⁶¹TSSC (SEQ ID NO: 43), P⁶¹TSSAC (SEQ ID NO: 44), LGIPTAP⁶¹LSSC (SEQ ID NO: 45), LGIPTQP⁶¹LSSC (SEQ ID NO: 46), LGIPTQGP⁶¹LSSC (SEQ ID NO: 47), LGIPQTP⁶¹LSSC (SEQ ID NO: 48), LGIPTSP⁶¹LSSC (SEQ ID NO: 49), ~~LGIPTSP⁶¹LSSC~~, LGIPTQP⁶¹LSSC (SEQ ID NO: 50), LGTPWAP⁶¹LSSC (SEQ ID NO: 51), LGTPFAP⁶¹LSSC (SEQ ID NO: 52), P⁶¹FTP (SEQ ID NO: 53), and SLGAP⁵⁸TAP⁶¹LSS (SEQ ID NO: 54).

13. (Currently Amended) The polypeptide of claim 2, wherein the G-CSF polypeptide comprises a mutant peptide sequence with the formula of Ø_aG_pJ_qO_rP¹⁷⁵X_nB_oZ_mU_sΨ_t (SEQ ID NO: 220) wherein

the superscript denotes the position of the amino acid in the wild type G-CSF amino acid sequence (~~SEQ ID NO: 3~~ SEQ ID NO: 143),

at least one of Z, U, O, J, G, Ø, B and X is threonine or serine, and when more than one of Z, U, O, J, G, Ø, B and X are threonine or serine, they are independently selected; Ø is optionally R, and G is optionally H; the symbol Ψ represents any uncharged amino acid residue or glutamate and

a, p, q, r, n, o, m, s, and t are integers independently selected from 0 to 3.

14. (Currently Amended) The polypeptide of claim 13, wherein the mutant peptide sequence is selected from the sequences consisting of: RHLAQTP¹⁷⁵ (SEQ ID NO: 55), RHLAGQTP¹⁷⁵ (SEQ ID NO: 56), QP¹⁷⁵TQGAMP (SEQ ID NO: 57), RHLAQTP¹⁷⁵AM (SEQ ID NO: 58), QP¹⁷⁵TSSAP (SEQ ID NO: 59), QP¹⁷⁵TSSAP (SEQ ID NO: 60), QP¹⁷⁵TQGAMP (SEQ ID NO: 61), QP¹⁷⁵TQGAM (SEQ ID NO: 62), QP¹⁷⁵TQGA (SEQ ID NO: 63), QP¹⁷⁵TVM (SEQ ID NO: 64), QP¹⁷⁵NTGP (SEQ ID NO: 65), and QP¹⁷⁵QTLQ (SEQ ID NO: 66).

15. (Currently Amended) The polypeptide of claim 2, comprises a mutant peptide sequence selected from the sequences P¹³³TQTAMP¹³⁹ (SEQ ID NO: 67), P¹³³TQGTMP (SEQ ID NO: 68), P¹³³TQGTNP (SEQ ID NO: 69), P¹³³TQGTLQ (SEQ ID NO: 70), and PALQP¹³³TQTAMPA (SEQ ID NO: 71).

16. (Original) The polypeptide of claim 1, wherein the polypeptide is an hGH polypeptide.

17. (Currently Amended) The polypeptide of claim 16, wherein the mutant peptide sequence comprises a sequence selected from: M¹APTSSPTIPL⁷SR⁹ (SEQ ID NO: 109) and DGSP¹³³NTGQIFK¹⁴⁰ (SEQ ID NO: 110).

18. (Currently Amended) The polypeptide of claim 15, wherein the hGH polypeptide comprises a mutant peptide sequence with a formula of P¹³³JXBOZUK¹⁴⁰QTYs (SEQ ID NO: 221), and wherein

the superscript denotes the position of the amino acid in the wild type hGH amino acid sequence (~~SEQ ID NO: 20~~ SEQ ID NO: 160), and

J is selected from threonine and arginine;

X is selected from alanine, glutamine, isoleucine, and threonine;

B is selected from glycine, alanine, leucine, valine, asparagine, glutamine, and threonine;

O is selected from tyrosine, serine, alanine, and threonine;

Z is selected from isoleucine and methionine; and

U is selected from phenylalanine and proline.

19. (Currently Amended) The polypeptide of claim 18, wherein the mutant peptide sequence is selected from the group consisting of PTTGQIFK (SEQ ID NO: 72), PTTAQIFK (SEQ ID NO: 73), PTTLQIFK (SEQ ID NO: 74), PTTLYVFK (SEQ ID NO: 75), PTTVQIFK (SEQ ID NO: 76), PTTVSIFK (SEQ ID NO: 77), PTTNQIFK (SEQ ID NO: 78), PTTQQIFK (SEQ ID NO: 79), PTATQIFK (SEQ ID NO: 80), PTQQQIFK (SEQ ID NO: 81), PTQGAIFK (SEQ ID NO: 82), PTQGAMFK (SEQ ID NO: 83), PTIGQIFK (SEQ ID NO: 84), PTINQIFK (SEQ ID NO: 85), PTINTIFK (SEQ ID NO: 86), PTILQIFK (SEQ ID NO: 87), PTIVQIFK (SEQ ID NO: 88), PTIQQIFK (SEQ ID NO: 89), PTIAQIFK (SEQ ID NO: 90), P¹³³TTTQIFK¹⁴⁰QTYS (SEQ ID NO: 91), and P¹³³TQGAMPK¹⁴⁰QTYS (SEQ ID NO: 92).

20. (Currently Amended) The polypeptide of claim 15, wherein the hGH polypeptide comprises a mutant peptide sequence with a formula of P¹³³RTGQIPTQBYS (SEQ ID NO: 222) wherein

the superscript denotes the position of the amino acid in the wild type hGH amino acid sequence (~~SEQ ID NO: 20~~ SEQ ID NO: 160), and

B is selected from alanine and threonine.

21. (Currently Amended) The polypeptide of claim 20, wherein the mutant peptide sequence is selected from the group consisting of PRTGQIPTQTYs (SEQ ID NO: 93) and PRTGQIPTQAYS (SEQ ID NO: 94).

22. (Currently Amended) The polypeptide of claim 16, wherein the hGH polypeptide comprises a mutant peptide sequence with a formula of L¹²⁸XTBOP¹³³UTG (SEQ ID NO: 223) wherein

superscripts denote the position of the amino acid in the wild-type hGH amino acid sequence (SEQ ID NO: 160); and wherein

X is selected from glutamic acid, valine and alanine;

B is selected from glutamine, glutamic acid, and glycine;
O is selected from serine and threonine; and
U is selected from arginine, serine, alanine and leucine.

23. (Currently Amended) The mutant hGH polypeptide of claim 22, wherein the mutant peptide sequence is selected from the group consisting of: LETQSP¹³³RTG (SEQ ID NO: 95), LETQSP¹³³STG (SEQ ID NO: 96), LETQSP¹³³ATG (SEQ ID NO: 97), LETQSP¹³³LTG (SEQ ID NO: 98), LETETP¹³³R (SEQ ID NO: 99), LETETP¹³³A (SEQ ID NO: 100), LVTQSP¹³³RTG (SEQ ID NO: 101), LVTETP¹³³RTG (SEQ ID NO: 102), LVTETP¹³³ATG (SEQ ID NO: 103), and LATGSP¹³³RTG (SEQ ID NO: 104).

24. (Currently Amended) The polypeptide of claim 16, wherein the hGH polypeptide comprises a mutant peptide sequence with a formula of M¹BPTX_nZ_mOPLSRL (SEQ ID NO: 224) wherein

~~wherein~~ the superscript denotes the position of the amino acid in the wild type hGH amino acid sequence (~~SEQ ID NO: 19~~ SEQ ID NO: 159); and

B is selected from phenylalanine, valine and alanine or a combination thereof;
X is selected from glutamate, valine and proline
Z is threonine;
O is selected from leucine and isoleucine; and
when X is proline, Z is threonine; and
wherein
n and m are integers selected from 0 and 2.

25. (Currently Amended) The polypeptide of claim 24, wherein the mutant peptide sequence is selected from the group consisting of M¹FPTEIPLSRL (SEQ ID NO: 105), M¹FPTVLPLSRL (SEQ ID NO: 106), and M¹APTPTIPLSRL (SEQ ID NO: 107).

26. (Currently Amended) The polypeptide of claim 24, wherein the mutant peptide sequence is M¹VTPTIPLSRL (SEQ ID NO: 108), wherein the superscript 1, denotes the first position amino acid in the wild type hGH amino acid sequence (~~SEQ ID NO: 19~~ SEQ ID NO: 159).

27. (Currently Amended) The polypeptide of claim 15, wherein the mutant peptide sequence is selected from the group consisting of: LEDGSPTTGQIFKQTYS (SEQ ID NO: 161), LEDGSPTTAQIFKQTYS (SEQ ID NO: 162), LEDGSPTATQIFKQTYS (SEQ ID NO: 163), LEDGSPTQGAMFKQTYS (SEQ ID NO: 164), LEDGSPTQGAIFKQTYS (SEQ ID NO: 165), LEDGSPTQQQIFKQTYS (SEQ ID NO: 166), LEDGSPTTLYVFKQTYS (SEQ ID NO: 167), LEDGSPTINTIFKQTYS (SEQ ID NO: 168), LEDGSPTTVSIFKQTYS (SEQ ID NO: 169), LEDGSPRTGQIPTQTYS (SEQ ID NO: 170), LEDGSPRTGQIPTQAYS (SEQ ID NO: 171), LEDGSPTTLQIFKQTYS (SEQ ID NO: 172), LETETPRTGQIFKQTYS (SEQ ID NO: 173), LVTETPRTGQIFKQTYS (SEQ ID NO: 174), LETQSPRTGQIFKQTYS (SEQ ID NO: 175), LVTQSPRTGQIFKQTYS (SEQ ID NO: 176), LVTETPATGQIFKQTYS (SEQ ID NO: 177), LEDGSPTQGAMPKQTYS (SEQ ID NO: 178), and LEDGSPTTTQIFKQTYS (SEQ ID NO: 179).

28. (Original) The polypeptide of claim 1, wherein the polypeptide is an IFN alpha polypeptide.

29. (Currently Amended) The polypeptide of claim 28, wherein ~~wherein~~ the INF alpha polypeptide has a peptide sequence comprising a mutant amino acid sequence, and the peptide sequence corresponds to a region of INF alpha 2 having a sequence as shown in ~~SEQ NO: 22~~ SEQ ID NO: 180, and wherein the mutant amino acid sequence contains a mutation to a threonine or serine amino acid at a position corresponding to T¹⁰⁶ of INF alpha 2.

30. (Original) The polypeptide of claim 29, wherein the IFN alpha polypeptide is selected from the group consisting of IFN alpha, IFN alpha 4, IFN alpha 5, IFN alpha 6, IFN alpha 7, IFN alpha 8, IFN alpha 10, IFN alpha 14, IFN alpha 16, IFN alpha 17, and IFN alpha 21.

31. (Currently Amended) The polypeptide of claim 30, wherein the IFN alpha polypeptide is an IFN alpha polypeptide comprising a mutant amino acid sequence selected from the group consisting of: ⁹⁹CVMQEERVETPLMNADSIL¹¹⁸ (SEQ ID NO: 111), ⁹⁹CVMQEEGVETPLMNADSIL¹¹⁸ (SEQ ID NO: 112), and ⁹⁹CVMQGVGVETPLMNADSIL¹¹⁸ (SEQ ID NO: 113).

32. (Currently Amended) The polypeptide of claim 30, wherein the IFN alpha polypeptide is an IFN alpha 4 polypeptide comprising a mutant amino acid sequence selected from the group consisting of: ⁹⁹CVIQEVGVETPLMNVD¹¹⁸ (SEQ ID NO: 114)[[,]] and ⁹⁹CVIQGVGV¹¹⁸ (SEQ ID NO: 115).

33. (Currently Amended) The polypeptide of claim 30, wherein the IFN alpha polypeptide is an IFN alpha 5 polypeptide comprising a mutant amino acid sequence selected from the group consisting of: ⁹⁹CMMQEVGV¹¹⁸ (SEQ ID NO: 116), ⁹⁹CMMQEVGV¹¹⁸ (SEQ ID NO: 117) and ⁹⁹CMMQGVGV¹¹⁸ (SEQ ID NO: 118).

34. (Currently Amended) The polypeptide of claim 30, wherein the IFN alpha polypeptide is an IFN alpha 6 polypeptide comprising a mutant amino acid sequence selected from the group consisting of: ⁹⁹CVMQEVWV¹¹⁸ (SEQ ID NO: 119), ⁹⁹CVMQEVGV¹¹⁸ (SEQ ID NO: 120), and ⁹⁹CVMQGVGV¹¹⁸ (SEQ ID NO: 121).

35. (Currently Amended) The polypeptide of claim 30, wherein the IFN alpha polypeptide is an IFN alpha 7 polypeptide comprising a mutant amino acid sequence selected from the group consisting of: ⁹⁹CVIQEVGV¹¹⁸ (SEQ ID NO: 122)[[,]] and ⁹⁹CVIQGVGV¹¹⁸ (SEQ ID NO: 123).

36. (Currently Amended) The polypeptide of claim 30, wherein the IFN alpha polypeptide is an IFN alpha 8 polypeptide comprising a mutant amino acid sequence selected from the group consisting of: ⁹⁹CVMQEVGV¹¹⁸ (SEQ ID NO: 124)[[,]] and ⁹⁹CVMQGVGV¹¹⁸ (SEQ ID NO: 125).

37. (Currently Amended) The polypeptide of claim 30, wherein the IFN alpha polypeptide is an IFN alpha 10 polypeptide comprising a mutant amino acid sequence selected from the group consisting of: ⁹⁹CVIQEVGV¹¹⁸ (SEQ ID NO: 126)[[,]] and ⁹⁹CVIQGVGV¹¹⁸ (SEQ ID NO: 127).

38. (Currently Amended) The polypeptide of claim 30, wherein the IFN alpha polypeptide is an IFN alpha 14 polypeptide comprising a mutant amino acid sequence

selected from the group consisting of: ⁹⁹CVIQEVGVVTETPLMNEDSIL¹¹⁸ (SEQ ID NO: 128)[[,]] and ⁹⁹CVIQGVGVVTETPLMNEDSIL¹¹⁸ (SEQ ID NO: 129).

39. (Currently Amended) The polypeptide of claim 30, wherein the IFN alpha polypeptide is an IFN alpha 16 polypeptide comprising a mutant amino acid sequence selected from the group consisting of: ⁹⁹CVTQEVGVTEIPLMNEDSIL¹¹⁸ (SEQ ID NO: 130), ⁹⁹CVTQEVGVVTETPLMNEDSIL¹¹⁸ (SEQ ID NO: 131), and ⁹⁹CVTQGVGVVTETPLMNEDSIL¹¹⁸ (SEQ ID NO: 132).

40. (Currently Amended) The polypeptide of claim 30, wherein the IFN alpha polypeptide is an IFN alpha 17 polypeptide comprising a mutant amino acid sequence selected from the group consisting of: ⁹⁹CVIQEVGVMTEPLMNEDSIL¹¹⁸ (SEQ ID NO: 133), ⁹⁹CVIQEVGVVTETPLMNEDSIL¹¹⁸ (SEQ ID NO: 134), and ⁹⁹CVIQGVGMTEPLMNEDSIL¹¹⁸ (SEQ ID NO: 135).

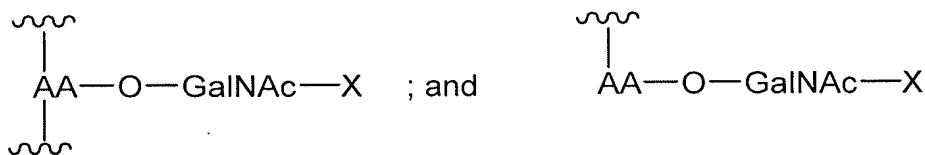
41. (Currently Amended) The polypeptide of claim 30, wherein the IFN alpha polypeptide is an IFN alpha 21 polypeptide comprising a mutant amino acid sequence selected from the group consisting of: ⁹⁹CVIQEVGVVTETPLMNVD(SIL)¹¹⁸ (SEQ ID NO: 136)[[,]] and ⁹⁹CVIQGVGVVTETPLMNVD(SIL)¹¹⁸ (SEQ ID NO: 137).

42. (Original) An isolated nucleic acid encoding the polypeptide of claim 1.

43. (Original) An expression cassette comprising the nucleic acid of claim 42.

44. (Original) A cell comprising the nucleic acid of claim 42.

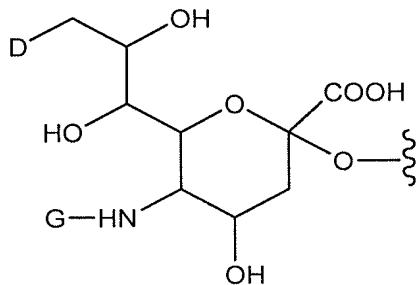
45. (Original) The polypeptide of claim 1, having a formula selected from:



wherein AA is an amino acid a side chain that comprises a hydroxyl moiety that is within the mutant peptide sequence; and X a modifying group or a saccharyl moiety.

46. (Original) The polypeptide according to claim 45, wherein X comprises a group selected from sialyl, galactosyl and Gal-Sia moieties, wherein at least one of said sialyl, galactosyl and Gal-Sia comprises a modifying group.

47. (Original) The polypeptide according to claim 45, wherein X comprises the moiety:



wherein

D is a member selected from -OH and R¹-L-HN-;

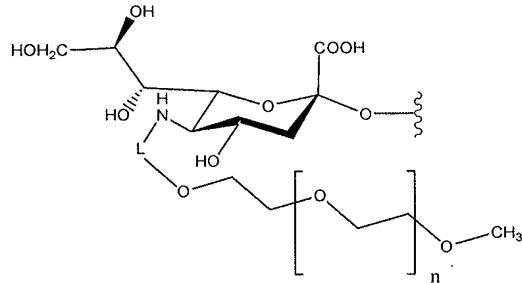
G is a member selected from R¹-L- and -C(O)(C₁-C₆)alkyl;

R¹ is a moiety comprising a member selected a moiety comprising a straight-chain or branched poly(ethylene glycol) residue; and

L is a linker which is a member selected from a bond, substituted or unsubstituted alkyl and substituted or unsubstituted heteroalkyl,

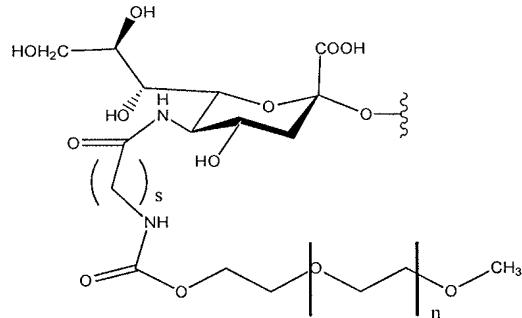
such that when D is OH, G is R¹-L-, and when G is -C(O)(C₁-C₆)alkyl, D is R¹-L-NH-.

48. (Original) The polypeptide according to claim 45, wherein X comprises the structure:



in which L is a substituted or unsubstituted alkyl or substituted or unsubstituted heteroalkyl group; and n is selected from the integers from 0 to about 500.

49. (Original) The polypeptide according to claim 45, wherein X comprises the structure:



wherein s is selected from the integers from 0 to 20.

50. (Original) A method for making a glycoconjugate of the polypeptide of claim 1, comprising the steps of:

- (a) recombinantly producing the polypeptide, and
- (b) enzymatically glycosylating the polypeptide with a modified sugar at said O-linked glycosylation site.

51. (Original) A pharmaceutical composition of a granulocyte colony stimulating factor (G-CSF) comprising: an effective amount of the polypeptide of claim 2, wherein said polypeptide is glycoconjugated with a modified sugar.

52. (Original) The pharmaceutical composition according to claim 51, wherein said modified sugar is modified with a member selected from poly(ethylene glycol) and methoxy-poly(ethylene glycol) (m-PEG).

53. (Original) A pharmaceutical composition of human Growth Hormone (hGH) comprising an effective amount of the polypeptide of claim 16, wherein said polypeptide is glycoconjugated with a modified sugar.

54. (Original) The pharmaceutical composition according to claim 53, wherein said modified sugar is modified with a member selected from poly(ethylene glycol) and methoxy-poly(ethylene glycol) (m-PEG).

55. (Original) A pharmaceutical composition of a granulocyte macrophage colony stimulating factor (GM-CSF) comprising an effective amount of GM-CSF polypeptide comprising a mutant peptide sequence, wherein the mutant sequence comprises an O-linked glycosylation site that does not exist in a wild-type GM-CSF polypeptide, and wherein said polypeptide is glycoconjugated with a modified sugar.

56. (Original) The pharmaceutical composition according to claim 55, wherein said modified sugar is modified with a member selected from poly(ethylene glycol) and methoxy-poly(ethylene glycol) (m-PEG).

57. (Original) A pharmaceutical composition of an interferon alpha-2b comprising an effective amount of the polypeptide of claim 28, wherein said polypeptide is glycoconjugated with a modified sugar.

58. (Original) The pharmaceutical composition according to claim 57, wherein said modified sugar is modified with a member selected from poly(ethylene glycol) and methoxy-poly(ethylene glycol) (m-PEG).

59. (Original) A method of providing G-CSF therapy to a subject in need of said therapy, said method comprising, administering to said subject an effective amount the pharmaceutical composition of claim 51.

60. (Currently Amended) A method of providing granulocyte macrophage colony stimulating factor therapy to a subject in need of said therapy, said method comprising[[::]] administering to said subject an effective amount the pharmaceutical composition of claim 55.

61. (Currently Amended) A method of providing interferon therapy to a subject in need of said therapy, said method comprising[[::]] administering to said subject an effective amount the pharmaceutical composition of claim 57.

62. (Currently Amended) A method of providing Growth Hormone therapy to a subject in need of said therapy, said method comprising[[:] administering to said subject an effective amount the pharmaceutical composition of claim 53.